IN THE CLAIMS

This listing of claims will replace all prior version, and listings, of claims in the application:

1. (currently amended): A liquid crystal display device having a driving circuit and a plurality of pixel units formed in combination, capable of accepting a digital signal input, comprising:

at least one pulse generator for generating a sample pulse which samples in time series an input digital signal corresponding to a pixel and generating a plurality of control signals;

at least one sampler for sampling the input digital signal in response to the sampling pulses;

at least one comparator receiving a sampled digital signal for comparison with a reference voltage, ~~and~~ outputting a comparison result ,and being controlled by the n-th control signals among the plurality of control signals, wherein the comparator further receives the (n-1)-th control signals among the plurality of control signals;

at least one latch for holding the comparison result; and at least one digital-to-analog converter generating an analog signal based on the received digital signal, then applying the analog signal to a corresponding pixel.

2. (original): The liquid crystal display device of claim 1 further comprising analog buffers for receiving the analog signal generated from the digital-to-analog converter and applying the analog signal to a corresponding pixel.

3. (original): The liquid crystal display device of claim 1 further comprising level converters for converting the held digital signal to a signal having a high signal level and outputting the signal to the digital-to-analog converter.

4. (original): The liquid crystal display device of claim 1 wherein the level of the reference voltage is half the amplitude of the input digital signal.

5. (original): The liquid crystal display device of claim 1 wherein the sampler is a switch.

6. (original): The liquid crystal display device of claim 1 wherein the pulse generator is a shift register.

7. (currently amended): A liquid crystal display device having a driving circuit and a plurality of pixel units formed in combination, capable of accepting a digital signal input, comprising:

a shift register for generating a sample pulse which samples in time series an input digital signal corresponding to a pixel and generating a plurality of control signals;

a data bus;

a set of switches for sampling an input digital signal in the data bus in response to the sampling pulses, wherein the number of the switches is equal to the number of data lines in the liquid crystal display device;

a set of comparators, each coupled to one switch, having a first input terminal for receiving a digital signal sampled by the corresponding switch and a second input terminal for receiving a reference voltage, and comparing the digital signal and the reference voltage to output a comparison result, wherein the n-th comparator among the set of comparators is controlled by the n-th control signal of the plurality of control

signals and further receives the (n-1)-th control signals among the plurality of control signals;

a set of latches, each coupled to one of the comparators, for holding the comparison result; and a set of digital-to-analog converters, each coupled to one of the latches for generating an analog signal based on a digital signal held by the corresponding latch and applying the analog signal to a corresponding pixel.

8. (original): The liquid crystal display device of claim 7 further comprising a set of analog buffers, each coupled to one of the digital-to-analog converters for receiving the analog signal generated from the corresponding digital-to-analog converter and applying the analog signal to a corresponding pixel.

9. (original): The liquid crystal display device of claim 7 further comprising a set of level shifts, each coupled between one of the latches and one of the digital-to-analog converters for amplifying the digital signal held by the corresponding latch to a signal having a high signal level and outputting the signal to the corresponding digital-to-analog converter.

10. (original): The liquid crystal display device of claim 7 wherein the level of the reference voltage is half the amplitude of the input digital signal.

11. (new): A liquid crystal display device having a driving circuit and a plurality of pixel units formed in combination, capable of accepting a digital signal input, comprising:

a shift register for generating a sample pulse which samples in time series an input digital signal corresponding to a pixel and generating a plurality of control signals;

a data bus;

a set of switches for sampling an input digital signal in the data bus in response to the sampling pulses, wherein the number of the switches is equal to the number of data lines in the liquid crystal display device;

a set of comparators, each coupled to one switch, having a first input terminal for receiving a digital signal sampled by the corresponding switch and a second input terminal for receiving a reference voltage, and comparing the digital signal and the reference voltage to output a comparison result, wherein the n-th comparator among the set of comparators is controlled by the n-th control signal of the plurality of control signals and reset by the (n-1)-th control signals among the plurality of control signals;

a set of latches, each coupled to one of the comparators, for holding the comparison result; and

a set of digital-to-analog converters, each coupled to one of the latches for generating an analog signal based on a digital signal held by the corresponding latch and applying the analog signal to a corresponding pixel.